

a lamella formed of at least one high-performance polymer comprising one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI) having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU),

wherein said at least one high-performance polymer results in a lamella having high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid.

REMARKS

Summary of the Amendment

Upon entry of the above amendment, claims 1, 14, 17, 26, 40, and 43 will have been amended, new claims 51 - 54 will have been entered for consideration by the Examiner, and claims 10, 11, 36, and 37 will have been canceled without prejudice or disclaimer. Accordingly, claims 1 - 9, 12 - 35, and 38 - 54 are currently pending.

Summary of the Official Action

In the instant Office Action, the Examiner has rejected the claims based upon formal matters and over the art of record. By the present amendment and remarks, Applicants submit that the objections and rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action and allowance of the present application.

Amendment is Proper for Entry

Applicants submit that the instant specification has been amended to disclose known

and inherent properties of the disclosed high-performance polymers. As evidence in support of Applicants' position, enclosed herewith as Appendix B is a chart listing the variously disclosed high-performance polymers, i.e., polyphenylene sulphone (PPSU), polyether sulphone (PES), polyetherimide (PEI), and polysulphone (PSU).

Further, while the Table is in German, the DIN numbers are clearly identified, and the instant application additionally includes these identifiers for each polymer. Thus, Applicants submit that it is clear that the additional disclosure is of known and inherent features of the high-performance polymers, and, therefore, does not raise any question of new matter.

Accordingly, entry of the amendment and consideration of the amended claims is requested.

Traversal of Rejection Under 35 U.S.C. § 112, Second Paragraph

Applicants traverse the rejection of claims 1 - 50 under 35 U.S.C. § 112, second paragraph, as being indefinite. By the present amendment, Applicants have amended the claims to address the Examiner's concerns by even more clearly reciting at least a further material property of the recited high-performance polymer, which thereby results in a lamella exhibiting the features. Thus, Applicants submit that the claims have been amended to even more clearly set forth the metes and bounds of the claims.

Further, as the relative terms are utilized to describe the resulting properties of a

lamella formed by the recited high-performance polymer, and not to define the recited high-performance polymer or the lamella, Applicants submit that the terms are no longer vague and indefinite.

Accordingly, Applicants request that the Examiner reconsider and withdraw the form rejection of claims 1 - 9, 12 - 35, and 38 - 50 under 35 U.S.C. § 112, second paragraph, and indicate that the claims are fully in compliance with the requirements of the statute.

Traversal of Rejection Under 35 U.S.C. 35 U.S.C. § 102(b)/§ 103(a)

Applicants traverse the rejection of claims 1 - 50 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative under 35 U.S.C. § 103(a) as being obvious over RODAL et al. (U.S. Patent No. 4,617,091) [hereinafter “RODAL”] or under 35 U.S.C. § 103(a) as unpatentable over RODAL as necessary with Applicants’ Admitted Prior Art (AAPA). The Examiner asserts that RODAL discloses a lamella formed of polysulphone and that this polymer is a high performance polymer that anticipates the recited features of the invention. Applicants traverse the Examiner’s assertions.

By the present amendment, independent claims 1 and 26 have been amended to recite that the at least one high-performance polymer comprising at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) *greater than that of polysulphone (PSU)*. Further, claims 17 and 43 have been presented in independent forms which recite the structural features of the lamellae. Applicants submit that RODAL (with or without AAPA)

fails to disclose, teach or suggest at least the above-noted features of the invention.

With regard to at least independent claims 1 and 26, Applicants note that RODAL fails to disclose or suggest the subject matter of the amended claims. In particular, as RODAL merely discloses the use of polysulphone, there is no teaching or suggestion of forming the lamella with a material having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) *greater than that of polysulphone (PSU)*.

Moreover, Applicants note that, while disclosing a number of high-performance polymers, they have made no admission that it would have been obvious to utilize one of the disclosed high-performance polymers in place of polysulphone. In particular, paragraph [0018] (as originally presented) discloses that the high-performance polymers polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI) were not developed until most recently.

Thus, Applicants submit that the selection of these particular materials, which provide advantages over polysulphone, at least with regard to water absorption and heat resistance, form part of the inventive process of the instant invention. Therefore, instead of a bald assertion of obviousness, Applicants submit that the Examiner must provide documentary evidence of obviousness from a source other than Applicants' disclosure, particularly since no relevant admission has been made in the instant application.

Accordingly, Applicants submit that, as RODAL fails to disclose at least the above-

noted features of at least independent claims 1 and 26, this document fails to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b). Thus, Applicants submit that the instant rejection is improper and should be withdrawn.

Moreover, as RODAL fails to provide any teaching or suggestion of a lamella formed of a high-performance polymer having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) *greater than that of polysulphone (PSU)*, and as the AAPA fails to provide any teaching or suggestion that it would have been obvious to modify the disclosed polysulphone of RODAL with a material having a greater water absorption (DIN 53495) or heat resistance (DIN 53461), as recited in at least independent claims 1 and 26, RODAL (whether considered alone or in any proper combination with the AAPA) fails to render unpatentable the invention recited in at least independent claims 1 and 26.

With regard to independent claims 17 and 43, Applicants note that RODAL fails to disclose, and, even if considered in any proper combination with the AAPA, fails to render the instant invention obvious. In particular, RODAL does not disclose or suggest that the lamella includes a free end arranged to extend to a region of a nozzle, in which the free end comprises a structured end region with a *dull lamella end having a height of more than about 0.5 mm.* In fact, Applicants note that RODAL fails to provide any disclosure regarding the structuring of the lamella end, and therefore, cannot anticipate or render unpatentable the features recited in at least independent claims 17 and 43.

Further, because RODAL fails to provide any teaching or suggestion with regard to structuring of the lamella end or even dimensions, Applicants submit that such features would require more than simply engineering design, since the document provides not dimensional basis from where such engineering design could begin.

Accordingly, Applicants submit that RODAL fails to anticipate or render unpatentable the combination of features recited in at least independent claims 17 and 43, and that the asserted rejection is improper and should be withdrawn.

Further, Applicant submits that claims 2 - 9, 12 - 35, and 38 - 50 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that RODAL fails to anticipate, and likewise, even when considered in any proper combination with AAPA, fails to render unpatentable the feature recited in the dependent claims.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1 - 9, 12 - 35, and 38 - 50 under 35 U.S.C. § 102(b)/35 U.S.C. § 103(a) and indicate that these claims are allowable.

Traversal of Rejection Under 35 U.S.C. § 103(a)

Applicants traverse the rejection of claims 15 - 17 and 41 - 43 under 35 U.S.C. § 103(a) as being unpatentable over RODAL, as necessary with the AAPA, and further in view

of EWALD et al. (U.S. Patent No. 4,566,945) [hereinafter "EWALD"]. The Examiner asserts that, as EWALD discloses specific lamella dimensions, it would have been obvious to modify RODAL to include such dimension.

Applicants note that RODAL specifically discloses that the material for use in the lamella is polysulphone. In contrast, EWALD discloses an element formed of laminations, and there is no teaching or suggestion that the laminations are formed of polysulphone.

As it is not apparent that the materials forming the lamellae in the disclosed documents are the same, Applicants submit that it would not have been obvious to one ordinarily skilled in the art to dimension such lamella in a corresponding manner. That is, the lamella of EWALD is laminated and dimensioned in order to achieve a desired characteristic, however, it is not apparent that similarly dimensioning a lamella formed of polysulphone would provide this desired characteristic.

Accordingly, as the specific dimensions of a non-polysulphone lamella fail to provide any motivation or rationale for modifying a polysulphone lamella, Applicants submit that the instant combination of documents is improper and should be withdrawn. In fact, Applicants submit that the only reasonable rationale for combining the documents in the manner asserted by the Examiner is found in Applicants' own disclosure, which is a use of improper hindsight. Accordingly, the instant rejection should be withdrawn.

Moreover, Applicants note that claims 15 - 17 and 41 - 43 are allowable at least for

the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that no proper combination of RODAL, as necessary with the AAPA, and EWALD, renders obvious to the instant invention.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 15 - 17 and 41 - 43 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

Newly Submitted Claims are Allowable

Applicants submit that newly presented claims 51 - 54 are allowable over the art of record. In particular, Applicants note that new claims 51 and 52 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits no proper combination of the applied documents teaches or suggests that said at least one high performance polymer comprises at least one of polyphenylene sulphone (PPSU), polyether sulphone (PES), polyetherimide (PEI), and polysulphone (PSU), as recited in claim 51 and 52.

Further, Applicants note that new independent claims 53 and 54 are allowable over the art of record. In particular, Applicants note that no proper combination of the applied documents teaches or suggest, *inter alia*, said at least one high-performance polymer

comprising one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI) having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU), as recited in at least independent claims 53 and 54.

Accordingly, Applicants request that the Examiner consider the merits of newly presented claims 51 - 54 and indicate that these claims are allowable.

Application is Allowable

Thus, Applicants respectfully submit that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 112, 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

Authorization to Charge Deposit Account

If for any reason a check including the amount for any necessary fees is not associated with this file, the Commissioner is authorized to charge to Deposit Account No. 19 - 0089 the amounts identified herein for the missing check, as well as any necessary fees not explicitly identified, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, in order to maintain pendency of this application.

CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, either

taken alone or in any proper combination thereof, anticipate or render obvious the Applicants' invention, as recited in each of claims 1 - 9, 12 - 35, and 38 - 54. The claims have been amended to eliminate any arguable basis for rejection under 35 U.S.C. § 112. In addition, the applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,
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APPENDIX

Marked-Up Copies of the Amended Paragraph:

Please replace paragraph [0018] with the following amended paragraph:

[0018] Out of the group of high-performance polymers that perform the above-mentioned requirements during operation and during cleaning of the headbox in an excellent fashion, polyphenylene sulphone (PPSU), polyether sulphone (PES), polyetherimide (PEI), and polysulphone (PSU) are recommended. The first three mentioned high-performance polymers, which were not developed until most recently, exhibit water absorption characteristics (DIN 53495) of 1.10% for PPSU; 2.00% for PES and 1.25% for PEI and heat resistance (DIN 53461) of 214°C for PPSU; 214°C for PES and 200°C for PEI, which are superior to those of PSU, i.e., 0.8% for DIN 53495 and 181°C for DIN 53461.

Marked-Up Copies of the Amended Claims:

1. (Amended) A lamella positionable in a headbox of a web production machine, said lamella being formed of at least one high-performance polymer; and said at least one high-performance polymer comprising at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU), thereby resulting in a lamella formed of a material having a high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid.

14. (Amended) The headbox in accordance with claim 1, wherein said high-performance polymer comprises at least one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI)[, and polysulphone (PSU)].

17. (Amended) A [The] lamella [in accordance with claim 1, further] positionable in a headbox of a web production machine, said lamella being formed of at least one high-performance polymer comprising a heat resistance (DIN 53461) of at least greater than 120°C, and said headbox comprising a nozzle, and

 said lamella includes a free end arranged to extend to a region of said nozzle,
 wherein said free end comprises a structured end region with a dull lamella end
 having a height of more than about 0.5 mm.

26. (Amended) A headbox of a web production machine comprising:
 a lamella formed of at least one high-performance polymer having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU),

 [wherein] whereby said at least one high-performance polymer results in a lamella having [comprises] high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid.

40. (Amended) The headbox in accordance with claim 26, wherein said high-performance polymer comprises at least one of polyphenylene sulphone (PPSU),

polyether sulphone (PES), and polyetherimide (PEI)[, and polysulphone (PSU)].

43. (Amended) A [The] headbox [in accordance with claim 26, further] comprising:

a lamella formed of at least one high-performance polymer comprising a heat resistance (DIN 53461) of at least greater than 120°C;

a jet end, and

said lamella [includes] including a free end arranged to extend to a region of said jet end,

wherein said free end comprises a structured end region with a dull lamella end having a height of more than about 0.5 mm.

APPENDIX BEigenschaftsvergleich von Polyacrylate gegen über verschiedenen Temperaturen beständigen Hochleistungspolymeren

EIGENSCHAFTEN	Einheit	Prüfnorm	PPSU		PEI		PPC
			PSU	PES	PEI	PEI	
Dichte	g/cm ³	DIN 53479	1,29	1,24	1,37	1,27	1,15
Wasseraufnahme bei 23°C; Sättigung	%	DIN 53495	1,10	0,80	2,00	1,25	0,5
Feuchteaufnahme b. 23°C / 50% r.F., Sättigung	%	DIN 53715	0,31	0,20	0,80	0,25	0,93
Beständigkeit gegen heißes Wasser, Waschläugen			++	++	++	++	+
Heißdampfsterilisierbarkeit (134°C, 30', 50ppm Morpholin, 1,000 PSI)	Zyklen bis zum Versagen	>2000	<100	<300	<200	<100	<10
Glasübergangstemperatur	°C	DIN 53736	220	187	235	255	143
Wärmeformbeständigkeit ISO-R 75 (HDT A)	°C	DIN 53461	207	169	214	180	160
Wärmeformbeständigkeit ISO-R 75 (HDT B)	°C	DIN 53461	244	181	214	200	170
Brennbarkeit bei 1,6 mm Dicke	Klasse	UL 94	V-0	V-2	V-0	V-0	V-0
Wärmeleitzahl (23°C)	W/(K*m)		0,18	0,25	0,18	0,22	0,19
Längenausdehnungskoeffizient (23°C)	10 ⁻⁵ K		-2,5	-5,5	-5,6	-5,6	-6,7
Zug-E-Modul	MPa	DIN 53457	2400	2400	2700	3200	3200
Streckspannung	MPa	DIN 53455	70	70	90	105	135
Reißdehnung	%	DIN 53455	60	20-50	20-50	>50	>50
Charpy-Kerbschlagzähigkeit	kJ/m ²	ISO 179/1A	312	113	123	<10	<10
Izod-Kerbschlagzähigkeit	kJ/m ²	ISO 180/1A	494	86	68	<4	<4
Izod-Kerbschlagzähigkeit	J/m	ASTM D-256	69	85	50	<10	<10
Dielektrizitätszahl (10 ⁶ Hz) IEC-250		DIN 53463	3,45	3,1	3,5	3,75	3,7
Dielektrischer Verlustfaktor (10 ⁶ Hz) IEC-250		DIN 53483	0,0076	0,005	0,001	0,001	0,001
Spezifischer Durchgangswiderstand VDE 0303/3	Ohm * cm	DIN 53462	>10 ¹⁶	5 * 10 ¹⁶	>10 ¹⁷	>10 ¹⁷	>10 ¹⁷
Oberflächenwiderstand	Ohm	DIN 53462	>10 ¹¹	>10 ¹⁴	>10 ¹⁴	>10 ¹⁶	>10 ¹⁶
Elektrische Durchschlagfestigkeit (IEC-243, VDE 0303/1)	kV/mm	DIN 53461	16	42	40	38	37
Chemische Beständigkeit*			1	1	1	1	1
Inorganic Acids			1	1	1	1	1
Inorganic Bases			1	1	1	4	4
Inorganic Salts			1	1	1	4	4
Alcohols			1	2	2	1	1
Aliphatic Hydrocarbons			1	1	1	1	1
Aromatic Hydrocarbons			3,4	4	4	3-4	3-4
Esters, Ketones, Aldehy			3	4	4	3-4	3-4
Chlorinated Hydrocarbon			4-5	4-5	4-5	4-5	4-5
• amerikanischen Unterlagen entnommen							

1 = excellent / no change
 2 = good / minor attack,
 no serious loss of properties

3 = fair / some attack, but
 still has useful properties
 4 = severe attack or rupture
 5 = swells or soluble